



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Patent Application of:

Thomas LEUCHT et al.

Application No.: 10/538,871

Group Art Unit: 1771

Filed: August 18, 2005

Examiner: Jenna Davis

NOTICE OF APPEAL AND APPEAL BRIEF

March 3, 2008

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the final Action of December 13, 2007, the Notice of Appeal and Appeal Brief are filed. A credit card authorization form in the amount of \$510.00 is attached herewith for the Appeal brief fee.

03/04/2008 MAHMED1 00000028 10538871
01 FC:2401 255.00 OP

03/04/2008 MAHMED1 00000028 10538871
02 FC:2402 255.00 OP

REAL PARTY IN INTEREST

The real party in interest is Raymaster Holding Aktiengesellschaft.

RELATED APPEALS AND INTERFERENCES

Appellants, Appellants' representative, and the Assignee of this application are aware of no other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on, the Board's decision in the pending appeal.

STATUS OF CLAIMS

Claims 1-9 and 14-16 are pending in the application. Each of claims 1-9 and 14-16 stands rejected. Claims 10-13 and 17-34 were canceled.

The rejection of each of claims 1-9 and 14-16 is appealed and is set forth in their entirety in the Claims Appendix attached hereto.

STATUS OF AMENDMENTS

No amendment is filed after the final Action of December 13, 2007.

Each of the claim amendments presented in Appellants' Amendment filed February 20, 2007 has been entered.

SUMMARY OF CLAIMED SUBJECT MATTER

The present invention relates to flame retarding, intumescent materials or masses.

At page 7, lines 18-24 of the specification, Appellants disclose:

"...a non-intumescent polymer material which provides the form of a body is used as carbon-donor component of an intumescent system. The phrase 'a polymer

material which provides the form of a body' is used to mean a polymer material which is present in solid form and is suitable for use as a substrate for the coating with a coating mass. The polymer material can be fibers, woven cloth, knitted fabric or parts." (Emphasis added).

In addition, page 3, lines 2-5, of the specification, the Appellants' intumescent body is disclosed as comprising a:

"coating mass of the intumescent system is to have as high a degree of transparency as possible so that for example an imprint provided on a surface of the body is not adversely affected." (Emphasis added).

Furthermore, at page 5, line 23-25, the specification discloses wherein the coating mass comprises:

"25 to 95 weight % of an aqueous dispersion containing poly-urethane or polyacrylate,
0.5 to 10 weight % of an isocyanate or a melamine-formaldehyde and
3 to 15 volume % of a flame retarding agent."

Still further, as stated before, at page 6, lines 21-28, Appellants disclose:

"[t]he generation of a flame retarding carbon foam is particularly due to the addition of the isocyanate or melamine-formaldehyde acting as the cross-linking agent. When thermo-plastic organic fibers are used, further cross-linking is achieved when the fibers are softened under the effects of the heat. According to the current state of knowledge, this makes an essential contribution to the generation of a stable carbon foam."

Furthermore, the Appellants disclose, in reference to the tables listed on pages 10-12, wherein:

"[t]he coating mass C contains no addition of a carbon donor. The results of the experiment clearly show that, corresponding to the invention's teaching, in particular a carbon donor in the coating mass can be omitted when a suitable polymer material is used to make the intumescent system." (Emphasis added) (See specification, page 12, line 22 - page 13, line 5).

In addition, based upon the table shown on page 16 of the specification, Appellants submit that:

"[t]he results clearly show that polyamide is also suitable as polymer material to make the intumescent system provided by the invention. Also when polyamide is used, it is sufficient to coat the polymer material with the coating mass C1 to obtain a sufficient intumescent effect. In particular, an addition of foaming agent and carbon-donor in the coating mass can be omitted." (See page 16, lines 12-18).

Furthermore, at page 19, line 18 through page 20, line 6, the Appellants disclose wherein:

"[t]he coating masses C, C1, and C2 have excellent transparency. An imprint applied to the textile appears brilliant and is visible without any adverse effects. This even applies to an imprint which is visible on both sides of the textile. The textile has a grams per square meter weight of less than 300 g/m². When heat or flames are applied, the material foams and creates a carbon foam which suppresses further flame development." (Emphasis added).

Accordingly, as presented above, Appellants clearly disclose the elements of independent claim 1 that recites, an intumescent body comprising:

a non-intumescent polymer material providing a form of the body (see specification, page 7, lines 17-24); and

a substantially transparent coating mass applied to a surface of the polymer material, the coating mass comprising (see specification, page 3, lines 2-5):

25 to 95 weight % of an aqueous dispersion containing polyurethane or polyacrylate (see specification, page 5, lines 23-25);

0.5 to 10 weight % of an isocyanate or a melamine-formaldehyde (see specification, page 5, lines 23-25); and

3 to 15 weight % of ammonium polyphosphate as a flame retarding agent (see specification, page 5, lines 23-25);

wherein the coating mass, together with the polymer material, results in an intumescent system, in which during a fire, the coating mass penetrates an interior of the polymer material creating with an aid of the polymer material, which provides an essential share of a carbon-donor component of the intumescent system, a flame extinguishing foam (see specification, page 12, line 22 - page 13, line 5).

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

- A. Whether claim 1 is unpatentable under 35 U.S.C. § 103(a) over Nozaki (US 6238820) in view of Marx (US 4774268).
- B. Whether claims 2-9 and 16 are unpatentable under 35 U.S.C. § 103(a) over Nozaki in view of Marx, as applied to claim 1.
- C. Whether claim 14 is unpatentable under 35 U.S.C. § 103(a) over Nozaki in view of Marx, as applied to claim 1, and further in view of Maples (US 6284343).

ARGUMENT

A. Claim 1 is not obvious under 35 U.S.C. § 103(a) over Nozaki in view of Marx

1. The disclosures of Nozaki and Marx, taken as a whole, do not suggest Appellants' claimed intumescent body. Claim 1 recites, *inter alia*, an intumescent body comprising a substantially transparent coating mass applied to a surface of a polymer material wherein the coating mass, together with the polymer material, results in "an intumescent system."

At the personal interview with Supervisory Patent Examiner Morris held September 20, 2007, Appellants' representative submitted, and the Examiner acknowledged, that "neither reference discusses intumescent material." (See Interview Summary).

Nozaki appears to only disclose a flame retardant for mesh sheets and nowhere includes the word intumescent or discloses, teaches, or suggests, wherein the coating, or the material being coated swells and chars when exposed to flame and forms an insulating fire-retardant barrier between the flame and material, i.e., exhibiting intumescent qualities. Marx, while disclosing flame resistant foam, appears to only disclose the foam as part of a polyurethane composition, not as a result of a charring process.

In page 4 of Final Office Action, the PTO argues that Nozaki discloses that ammonium polyphosphate generates nitrogen gas that shuts off oxygen to the material, and this action appears to be the same mechanism as recited by Applicants. The PTO further asserts that "[t]he generation of CO₂ and nitrogen gases would cause the coating to swell and would thus fall within a reasonable definition of an intumescent material." (Emphasis added).

Appellants respectfully disagree and submit that the PTO appears to be making a conclusion, i.e., that the generation of CO₂ and nitrogen would cause the coating to swell, without providing any basis for that conclusion. Appellants submit that generation of gases fails to suggest the generation of a flame extinguishing foam, as recited by Appellants. Indeed, the USPTO's Board of Patent Appeals and Interferences has stated that:

"[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." (In re Kahn, 441 F. 3d 977, 988 (CA Fed. 2006) cited with approval in KSR, 550 U.S. at 14, 82 USPQ2d).

Accordingly, the disclosures of Nozaki and Marx, taken as a whole, do not suggest Appellants' claimed intumescent body.

2. The combined disclosures of Nozaki and Marx do not teach or suggest all of Appellants' claim limitations. Specifically, Claim 1 recites wherein "a substantially transparent coating mass applied to a surface of the polymer material." (Emphasis added). Nowhere does the applied art disclose, teach, or suggest, at least this feature.

Notwithstanding the lack of explicit or implicit disclosure of all claimed elements in the combined disclosure of Nozaki and Marx, the combination or modification of references can not render the resultant combination obvious unless the prior art also suggest the desirability of the combination. Appellants respectfully disagree with the assertion made in the Office Action that "[w]hile the reference does not require the coating to be transparent, it would have been obvious to a person having ordinary skill in the art to do so in order to be able to view the underlying substrate."

The Final Office Action appears to indicate that a transparent coating is an obvious matter of an engineering design choice. The Board of Patent Appeals and Interferences has made clear, however, that the bare assertion that the modification of the prior art would have been an obvious matter of engineering design choice is insufficient to establish a prima facie case of obviousness because this assertion is a conclusion not a reason. Ex parte Garrett, 1986 Pat. App. LEXIS 8 (Bd. Pat. App. and Inter. 1986).

The coating as disclosed by Nozaki relates to a flameproof mesh sheet used outdoors such as at a construction site, and in particular to flameproof mesh sheets capable of being used for a long time. Listed uses include construction of buildings having both a large and relatively small number of stories. Appellants respectfully submit that the Office Action fails to explain why it would be obvious to provide outdoor construction material with a transparent coating.

Appellants further submit that the flame retardant coating of Nozaki is inherently non-transparent by virtue of its composition, and that the feature of transparency is achieved essentially through two measures that differentiate the Appellants' transparent coating from the flame retardant disclosed by Nozaki.

First, unlike Nozaki, which discloses, at column 5, lines 65-67, a film made from a mixture of carbon and condensation phosphoric acid formed on the surface of the resin, the Appellants' coating mass does not include a carbon-donor component that usually leads to a non-transparency of the intumescent mass.

Second, Nozaki discloses, at column 4, lines 65-67, that the addition of red phosphors leads to a strong red color. Appellants further submit that it is well known in the art that red phosphors

do not dissolve in water and requires the use of micro-encapsulated red phosphors in order to create an aqueous dispersion containing red phosphors. Such micro-encapsulated red phosphors are disclosed by Nozaki at column 5, lines 1-5. Nozaki further discloses, at column 5, lines 33-41, that the concentration of phosphorous contained in an ammonium polyphosphate compound is preferably 15 to 35% and the average diameter of the compound is preferably 5 to 40 μm .

Thus, one of ordinary skill in the art would be aware that a resin dispersion containing "red phosphorous in an amount of 1.5 to 15 parts by weight and an ammonium polyphosphate compound in an amount of 10 to 70 parts by weight on 100 parts by weight of the solid content of said aqueous dispersion," as recited in Nozaki's claim 1, cannot be transparent because of the high content of solid particles contained therein. Appellants therefore submit that Nozaki teaches away from the recited transparent coating mass.

3. The grounds of rejection constitute an improper reconstruction of Appellants' claimed invention. The Office Action indicates that the addition of "an isocyanate or a melamine-formaldehyde," to the coating, as recited in claim 1, would have been obvious based on the combination of Nozaki and Marx. Appellants respectfully disagree. As submitted and acknowledged by Examiner Morris at the time of the personal interview on September 20, 2007, the Office Action appears, at the bottom of page 3 and the top of page four, to recite a motivation found only in Appellants specification.

Specifically, at page 6, lines 21-23, of the specification, the Appellants disclose wherein: "[t]he generation of a flame retarding carbon foam is particularly due to the addition of the isocyanate or a melamine-formaldehyde acting as the cross-

linking agent. When thermoplastic organic fibers are used, further cross-linking is achieved when the fibers are softened under the effects of the heat." The Office Action indicates that "[i]t would have been obvious to a person having ordinary skill in the art at the time the invention was made to add melamine formaldehyde of Marx et al. into the coating composition of Nozaki et al. motivated to act as a crosslinking agent as well as to allow the polyurethane to soften when heated." Appellants respectfully disagree.

Nowhere does Marx disclose adding melamine-formaldehyde as a cross-linking agent, let alone removing melamine from the polymer to allow the fibers to soften under the effects of heat. Marx, at column 7, lines 45-48, appears to only disclose the use of melamine as a flame retardant and not as a cross-linking agent, as recited in claim 1. The Office Action not only appears to use improper hindsight reconstruction to pick and choose among isolated disclosures, the Office Action appears to recite a motivation found only in Appellants' specification. Accordingly, it is respectfully submitted that the combination is improper.

Therefore, as presented above, Applicants respectfully submit that independent claim 1 is patentable not only due to the failure of Nozaki in view of Marx to disclose, teach or motivate all recited features of the claims, but are also patentable based upon the improper combination of Nozaki and Marx. Accordingly, reversal of the rejection of claim 1 is respectfully requested.

B. Claims 2-9 and 16 are not obvious under 35 U.S.C. § 103(a) over Nozaki in view of Marx as applied to claim 1

Claims 2-9 and 16 depend from claim 1 and are likewise patentable over the asserted combination of references at least based upon their dependence on an allowable base claim, as well as for the additional features they recite. Accordingly, reversal of the rejection of claims 2-9 and 16 is respectfully requested.

C. Claim 14 is not obvious under 35 U.S.C. § 103(a) over Nozaki in view of Marx, as applied to claim 1, and further in view of Maples

Maples was cited to show a composition comprising a defoamer in a range of about 0.01 to 1.0 wt.%.


However, Maples fails to remedy the deficiencies of Marx and Maples, as applied to claim 1. Claim 14 depends from claim 1 and is likewise patentable over the asserted combination of references at least based its dependence on an allowable base claim, as well as for the additional features it recites. Accordingly, reversal of the rejection of claim 14 is respectfully requested.

CONCLUSION

Accordingly, based upon the arguments presented above, Appellants respectfully submit that the rejections of claims 1-9 and 14-16 are in error, and request that each of the final rejections be reversed.

Respectfully submitted,

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CLAIMS APPENDIX

1. An intumescent body comprising:
a non-intumescent polymer material providing a form of the body;
and
a substantially transparent coating mass applied to a surface of the polymer material, the coating mass comprising:
25 to 95 weight % of an aqueous dispersion containing
polyurethane or polyacrylate;
0.5 to 10 weight % of an isocyanate or a melamine-formaldehyde;
and
3 to 15 weight % of ammonium polyphosphate as a flame retarding agent;
wherein the coating mass, together with the polymer material, results in an intumescent system, in which during a fire, the coating mass penetrates an interior of the polymer material creating with an aid of the polymer material, which provides an essential share of a carbon-donor component of the intumescent system, a flame extinguishing foam.
2. Intumescent body as defined in claim 1, wherein the polymer material has a carbon content of ≥ 20 weight %.
3. Intumescent body as defined in claim 1, wherein the polymer material provides a share of at least 20 weight % of the carbon in the intumescent system.
4. Intumescent body as defined in claim 1, wherein a difference ΔT between a melting temperature T_S and a crystallization temperature T_C of the polymer material is ≥ 40 K.

5. Intumescent body as defined in claim 1, wherein a difference ΔT is in the range of 40 to 80 K.
6. Intumescent body as defined in claim 4, wherein the crystallization temperature TC is ≤ 200 °C.
7. Intumescent body as defined in claim 1, wherein the polymer material has a melting temperature Ts in the range of 50 °C to 400 °C or a decomposition temperature in the range of 150 °C to 500 °C.
8. Intumescent body as defined in claim 1, wherein the intumescent system is at least one of a halogen-free and heavy metal-free system.
9. Intumescent body as defined in claim 1, wherein the polymer material is selected from the following group consisting of polyester, polyamide, polyacrylate, polyurethane, polyacrylonitrile, aramids and derivatives of the aforementioned polymers.
14. Intumescent body as defined in claim 1, further comprising 0.1 to 1.0 weight % of an agent for deaeration.
15. Intumescent body as defined in claim 1, further comprising 0.1 to 1.5 weight % of at least one of an insecticide and a bactericide..
16. Intumescent body as defined in claim 1, wherein the polymer material is present in the form of fibers, or woven cloth, or knitted fabric, made thereof.

EVIDENCE APPENDIX

No copies of evidence are appended hereto.

RELATED PROCEEDINGS APPENDIX

No copies of decisions are appended hereto.